REMARKS

Receipt of the Office Action of October 17, 2006 is gratefully acknowledged.

Claims 9-16 were examined. These were rejected as follows:

Claims 12 and 15 as indefinite under 35 USC 112, second paragraph; claims 9-10 and 13 as anticipated under 35 USC 102(b) by Johns et al.; and claims 11, 12, and 14-16 as unpatentable under 35 USC 103(a) over Johns et al. In addition, the drawings are objected to because reference numeral 10 is not included in the drawings and because of the recitation in claims 14 and 15.

A Replacement Sheet for Figure 1 is being submitted herewith which shows the reference numeral 10 directed to the potting compound. Claims 14 and 15 have been cancelled so that their subject matter need not be illustrated.

Claim 9 has been amended as well as claim 12. Claim 12 has been amended to overcome the indefiniteness rejection. For this purpose new claims 17 and 18 have been added so that the range of heat spreader thickness is found in three claims.

As amended, claim 9 is believed to patentably distinguish over the references of record so that the rejections under 35 USC 102(b) and 35 USC 103(a) are respectfully traversed. According to the present invention the hotspots which occur in the outer surface of the housing wall of electronic circuitry, wherein the electronic circuitry is disposed on a circuit board situated in the housing are avoided. The hotspots result from the heat generated by the electronic circuitry, and this heat is dissipated through a potting material which fills the voids in the interior of the housing. The direction of heat conduction is defined by temperature gradients which extend essentially perpendicular to the extension of the wall of the housing. This may lead to hazardous hotspots on the outer surface of the wall. According to the present invention

a heat dissipater situated between the circuit board and the wall of the housing results in improved lateral dissipation of heat before the heat is further conducted to the wall. To ensure clarity on this point, claim 9 has been amended to recite that the circuit board faces the wall of the housing directly. This implies that there are no other circuit boards between the circuit board under consideration and the wall of the housing. The Johns et al. patent discloses a device wherein a plurality of circuit boards 31, 31', and 31" (referred to as modules) as stacked in parallel arrangement in a housing 41, wherein the voids in the housing are filled with potting 43. Conductive aluminum shims 44 provided between the circuit boards to act as heat conductors to remove heat from the various power dissipating portions of the modules. These aluminum shims may be terminated by mechanical connection to the housing (see column 2, lines 61-66). However, the aluminum shims are disposed between adjacent circuit boards that both may generate heat which is to be dissipated. This arrangement prevents an efficient heat gradient to exist between two circuit boards if the space is filled by potting only. The aluminum shim heats as a heat sink to laterally guide the heat away between two heat sources. Since the aluminum shim is terminated by mechanical connection to the housing all heat is dissipated to the wall of the housing at a single point, thereby generating a hot spot on the outer surface of the wall of the housing, which is precisely to be avoided.

Johns et al. do not teach to provide such aluminum shims between a circuit board directly facing an outer wall of the housing without further circuit boards between the shim and the housing wall. Accordingly, since the aluminum shims disclosed by Johns et al. is not provided between the circuit board and the wall of the housing such that the circuit board faces the housing directly, then heat dissipation, cannot be achieved as is the case with the present invention. With the arrangement of Johns et al. hotspots on the outer surface of the housing can still be expected. Not so with the present invention.

In view of the foregoing, reconsideration and reexamination are respectfully requested and claims 9-13 and 16-18 found allowable.

Respectfully submitted,
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